Appendix G.

Supplemental Planning & Demonstration Projects



DYNAMIC SPEED FEEDBACK SIGN PILOT STUDY

SEVIER COUNTY & LOCAL JURISDICTIONS

SEVIER COUNTY SS4A

This countywide demonstration project will deploy mobile radar-based speed feedback signs at key speeding hotspots to evaluate their effectiveness in reducing operating speeds and improving compliance. The project will focus on rural curves, speed transition zones, and school areas where speeding is common. The goal is to determine which roadway types respond best to this low-cost treatment and use results to guide a broader countywide deployment strategy.

PROJECT SCOPE

- Procure 10 dynamic radar speed signs
- Prioritize school zones, rural curves, and known speed-related crash corridors, identified by the Speed Management Plan and Safety Action Plan
- Deploy up to 30 locations across Sevier County
- Rotate signs every 1-2 months to capture various driver behavior for both local and tourist drivers
- Collect speed and compliance data at each site before, during, and after deployment
- Document effectiveness to update the Action Plan and inform future implementation

SAFETY NEEDS

- Speeding is a contributing factor in many serious injury crashes across Sevier County, particularly in rural and transitional areas
- Tourist-heavy roads experience variable speeds and abrupt braking near attractions
- School zones and speed transition areas have inconsistent driver compliance with posted limits
- Existing countermeasures (signing, enforcement) are insufficient in high-risk locations without physical traffic calming

EVALUATION PLAN

- Use built-in radar logging to record 85th percentile and average speeds before, during, and after deployment
- Compare speed reduction across road types (rural, collector, arterials, near schools) and on- and off-tourist peak season
- Observe compliance improvements

SCHEDULE

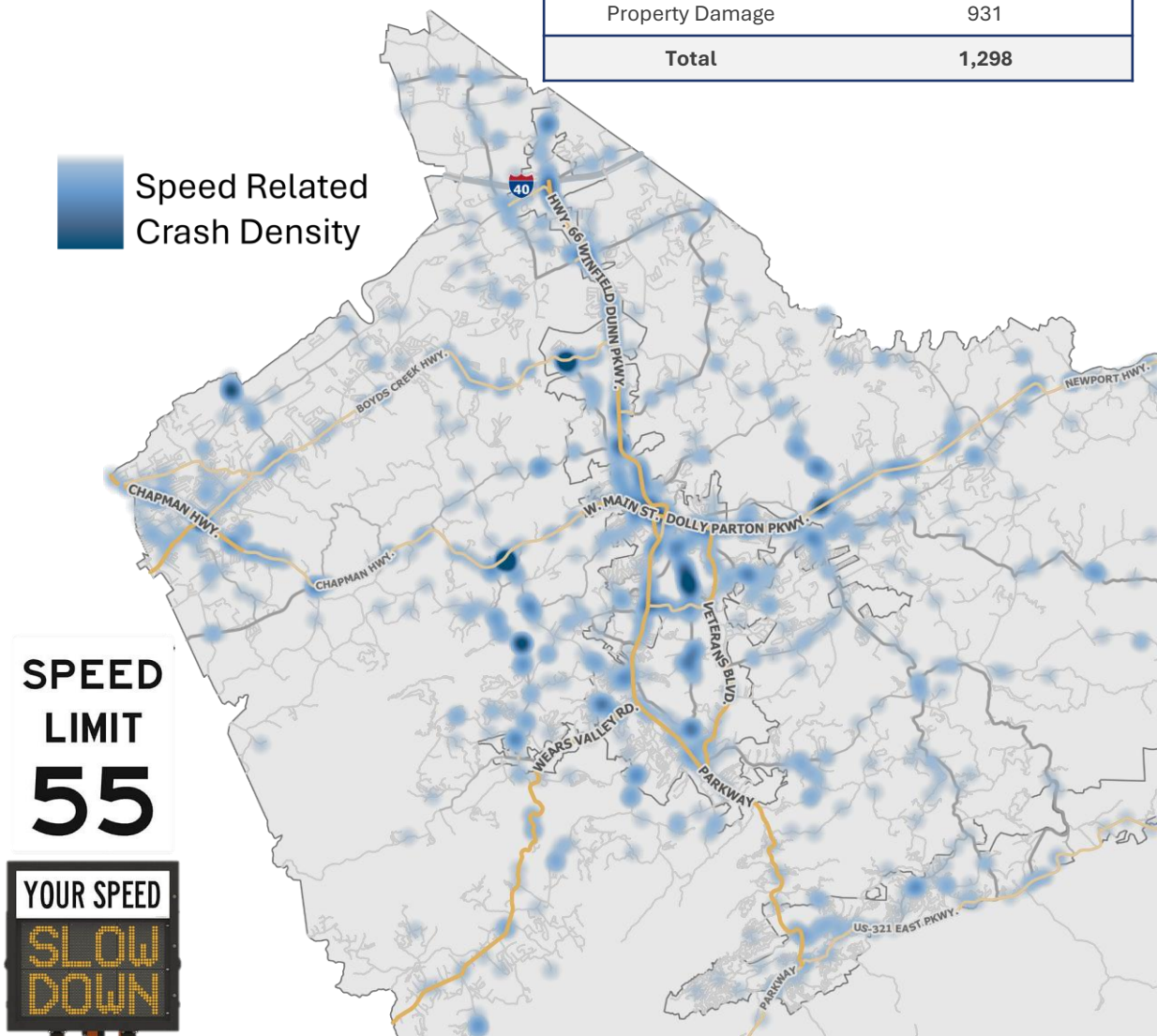
- Equipment procurement and site selection (months 1–3)
- 10-month technology deployment to capture peak and off-peak tourist traffic (months 4–13)
- Parallel evaluation concluding shortly after (through month 15)
- Final reporting with update to Action Plan (months 16–18)

ESTIMATED COST

- Total estimated cost $200,000

"Crashes where *speed* was indicated as a contributing factor were nearly *5x* as likely to result in a *fatality or serious injury*"

Injury Type	Speed-Related Crashes
Fatal	26
Serious Injury	95
Minor Injury	246
Property Damage	931
Total	**1,298**



TOURIST VULNERABLE ROAD USER (VRU) SAFETY FEASABILITY STUDY

SEVIER COUNTY SS4A

This demonstration project will test a toolkit of temporary pedestrian safety enhancements in high-tourism corridors throughout Gatlinburg, Pigeon Forge, and Sevierville. The goal is to evaluate the impact of low-cost treatments on pedestrian visibility, driver yielding behavior, and crash risk reduction — and use the results to inform permanent design decisions and future capital projects.

PROJECT SCOPE

- Deploy temporary curb extensions using paint, planters, or bollards
- Add high-visibility crosswalk markings and pedestrian signage
- Program pedestrian signal enhancements (e.g., LPIs, pedestrian-only phases)
- Deploy portable pedestrian-scale lighting in low-visibility areas
- Launch a pedestrian awareness and education campaign
- Collect before-and-during data and public feedback
- Use results to inform corridor-level recommendations and permanent upgrades

SAFETY NEEDS

- High volumes of tourists walking in commercial corridors mix with turning traffic, distracted driving, and poor yielding behavior
- Visibility is poor at night in many pedestrian-prone locations, including 3 nighttime pedestrian fatalities in Pigeon Forge

EVALUATION PLAN

- Use radar and/or video data to measure driver yielding, pedestrian compliance, and near-miss events
- Track crash and conflict trends before and during installation
- Distribute QR-code survey signs at pilot sites to gather public feedback
- Evaluate lighting and visibility improvements at night

COMMUNITY CONCERN

- Pedestrian safety is a top concern for both residents and visitors, as noted in the Safety Action Plan survey and public meeting feedback
- Community has reported problems with drivers not yielding at crosswalks, poor lighting, and unsafe crossing conditions trolley stops and attractions
- Businesses and tourism partners support enhancing walkability

SCHEDULE

- Procurement and site coordination (months 1–4)
- Technology deployment and evaluation period (months 5–16)
- Final reporting with update to Action Plan (months 17–20)

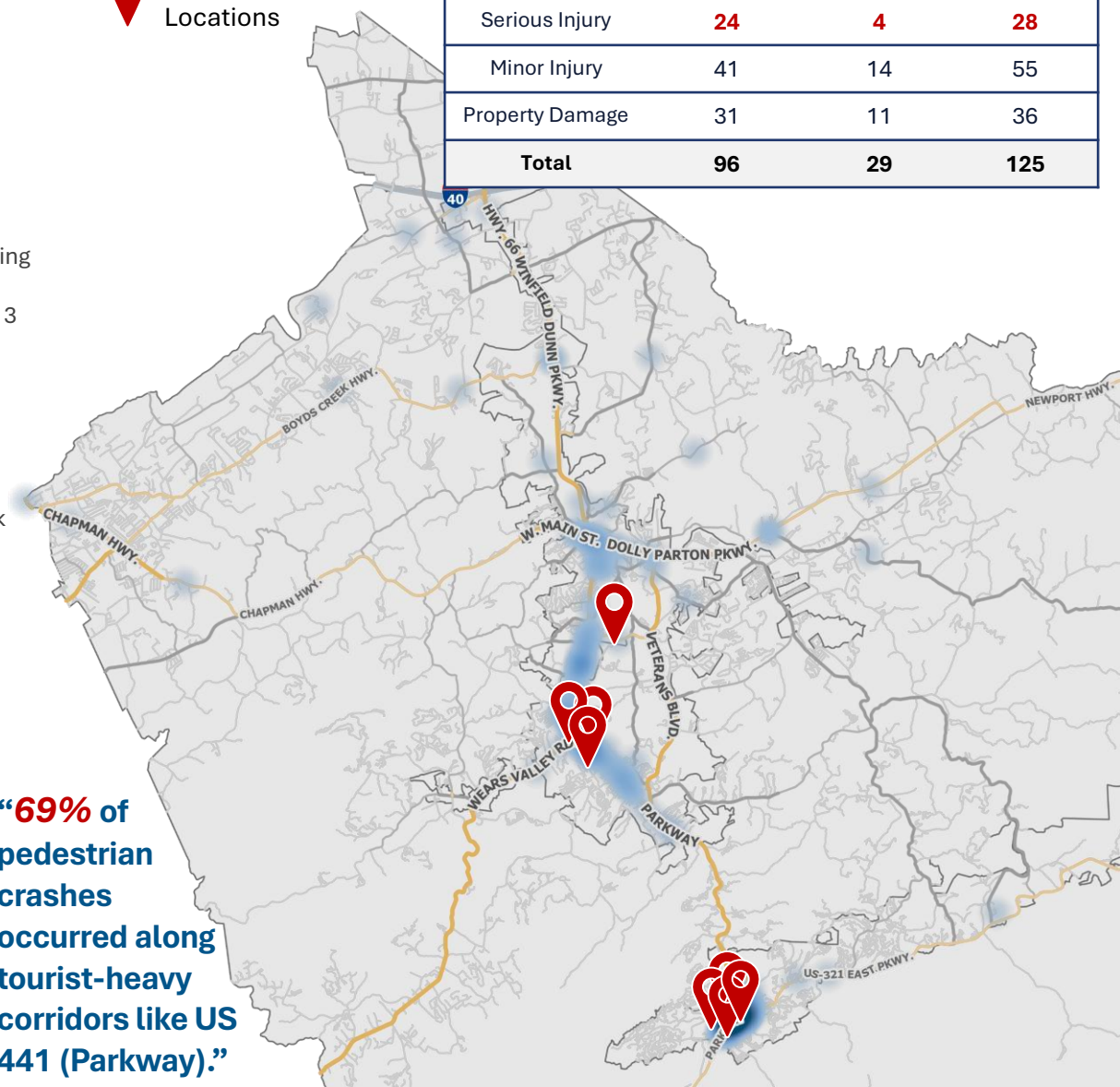
ESTIMATED COST

- Total estimated cost $200,000

Pedestrian Crash Density

Proposed Pilot Locations

Injury Type	Pedestrian Crashes	Bicycle Crashes	Total Crashes
Fatal	6	0	6
Serious Injury	24	4	28
Minor Injury	41	14	55
Property Damage	31	11	36
Total	**96**	**29**	**125**



"69% of pedestrian crashes occurred along tourist-heavy corridors like US 441 (Parkway)."

DYNAMIC MESSAGE SIGN & QUEUE WARNING PILOT STUDY

SEVIER COUNTY SS4A

This multi-jurisdictional demonstration project will pilot queue detection using microwave sensors and trailer-mounted Dynamic Message Signs (DMS) in highly-congested tourist corridors. The signs will display real-time messages to alert drivers about sudden stops, maintaining lanes, and upcoming congestion. The pilot will test message effectiveness in reducing crash risks and support future investment in permanent traveler information systems.

PROJECT SCOPE

- Procure 4 trailer DMS and 2 trailer Microwave Sensors
- Deploy DMS and Sensor units at key congestion hotspots (e.g., US-441, SR-66, SR-411) and use queue detection systems to trigger congestion warning messages
- Rotate units between Sevierville, Pigeon Forge, Seymour and Gatlinburg during special events and peak tourist seasons
- Test message content and placement strategies for maximum visibility and behavioral impact
- Track speed, driver behavior, and congestion levels before, during, and after deployment
- Document effectiveness to update the Action Plan and inform permanent overhead DMS installation locations

SAFETY NEEDS

- These Major State Route corridors bring in over 21 million tourist trips a year to Sevier County
- Rear-end and same-direction sideswipe crashes are frequent in congested corridors due to sudden stops, lane weaving, and speed variability
- Seasonal traffic surges lead to unpredictable queuing and roadside attractions reduce driver attentiveness to the roadway
- Tourists unfamiliar with local roads contribute to risky maneuvers and harsh braking behavior
- Existing signage is static and often ignored during heavy congestion

EVALUATION PLAN

- Measure speeds before and during deployment
- Compare crashes, near-misses, and change in rear-end and same-direction sideswipe crash types before and during deployment
- Use radar to detect congestion buildup and evaluate queue lengths
- Conduct brief public awareness surveys to evaluate driver understanding and perception

SCHEDULE

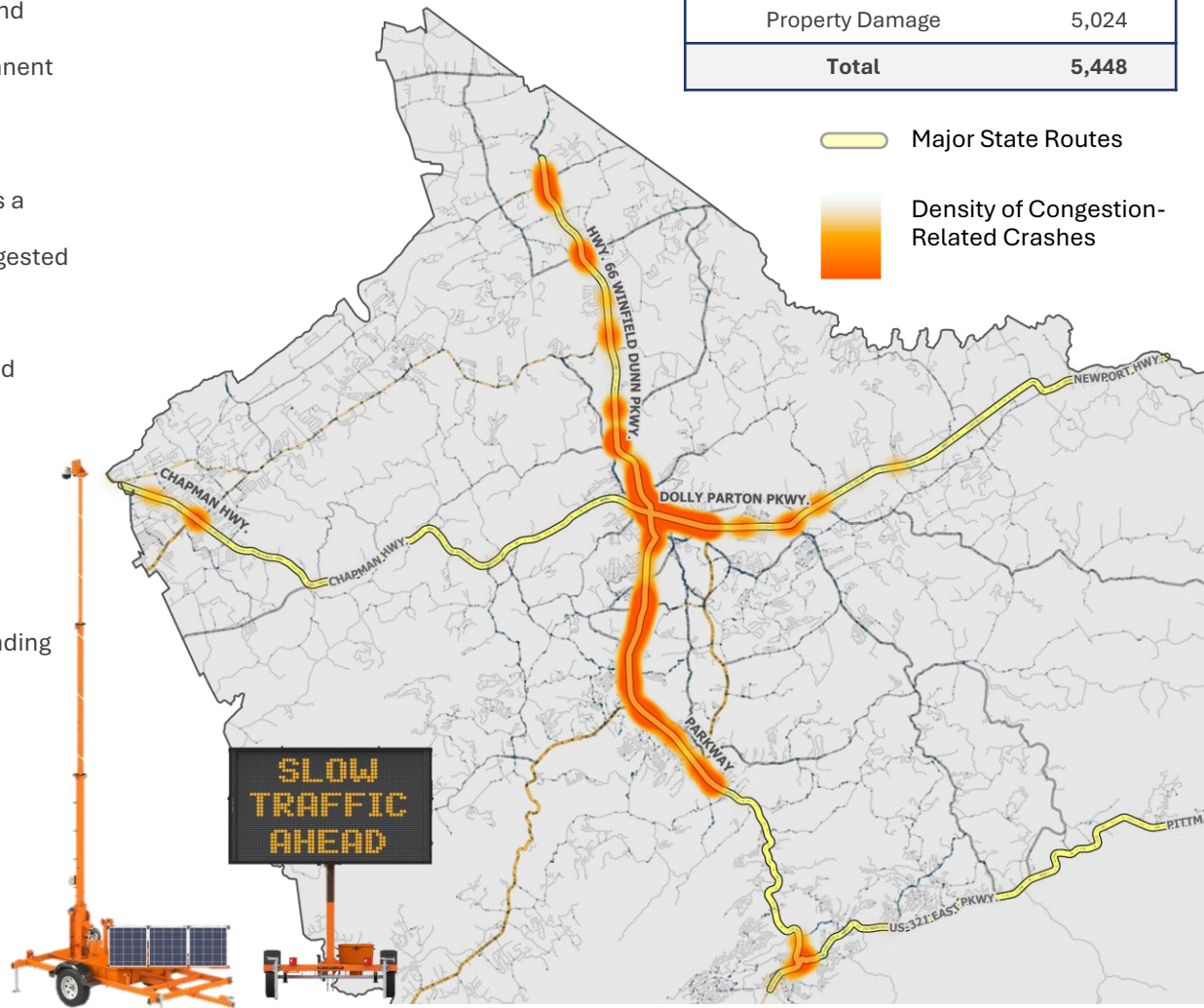
- Equipment procurement and agency coordination (months 1–4)
- 14-month technology deployment and evaluation period covering seasonal congestion and special events (months 5–18)
- Final reporting with update to Action Plan (months 19–21)

ESTIMATED COST

- Total estimated cost $300,000

Rear-End and Sideswipe Crashes along Selected Major State Routes

Injury Type	Total
Fatal	7
Serious Injury	26
Minor Injury	391
Property Damage	5,024
Total	**5,448**



SPEED MANAGEMENT PLAN

SEVIER COUNTY & LOCAL JURISDICTIONS

SEVIER COUNTY SS4A

This countywide planning effort will analyze speeding behavior, crash patterns, and roadway context to develop safer, context-sensitive speed limits and speed management strategies. The plan will guide the implementation of low-cost countermeasures and align speed policies with local safety goals and the Safe System Approach.

PROJECT SCOPE

- Analyze speed profiles and crash data across all functional roadway classes
- Compare posted vs. operating speeds using radar and probe data
- Review existing speed limit policies for countywide consistency
- Identify and map context-sensitive speed zones
- Develop a prioritized corridor and treatment list

SAFETY NEEDS

- Speeding is a leading contributing factor in serious crashes, particularly on high-speed rural roads and congested tourist corridors
- Frequent speed disruption due to congestion, in areas like Pigeon Forge and Sevierville, contributes to a high number of rear-end and lane departure crashes
- Rural curves present significant risks for speed related single-vehicle run-off-road incidents

EVALUATION PLAN

- Use probe and radar data with spatial crash overlays to identify high-risk corridors
- Classify roads by context and identify ideal speed ranges
- Recommend corridors for pilot countermeasures (e.g., speed feedback signs, rumble strips)

COMMUNITY CONCERN

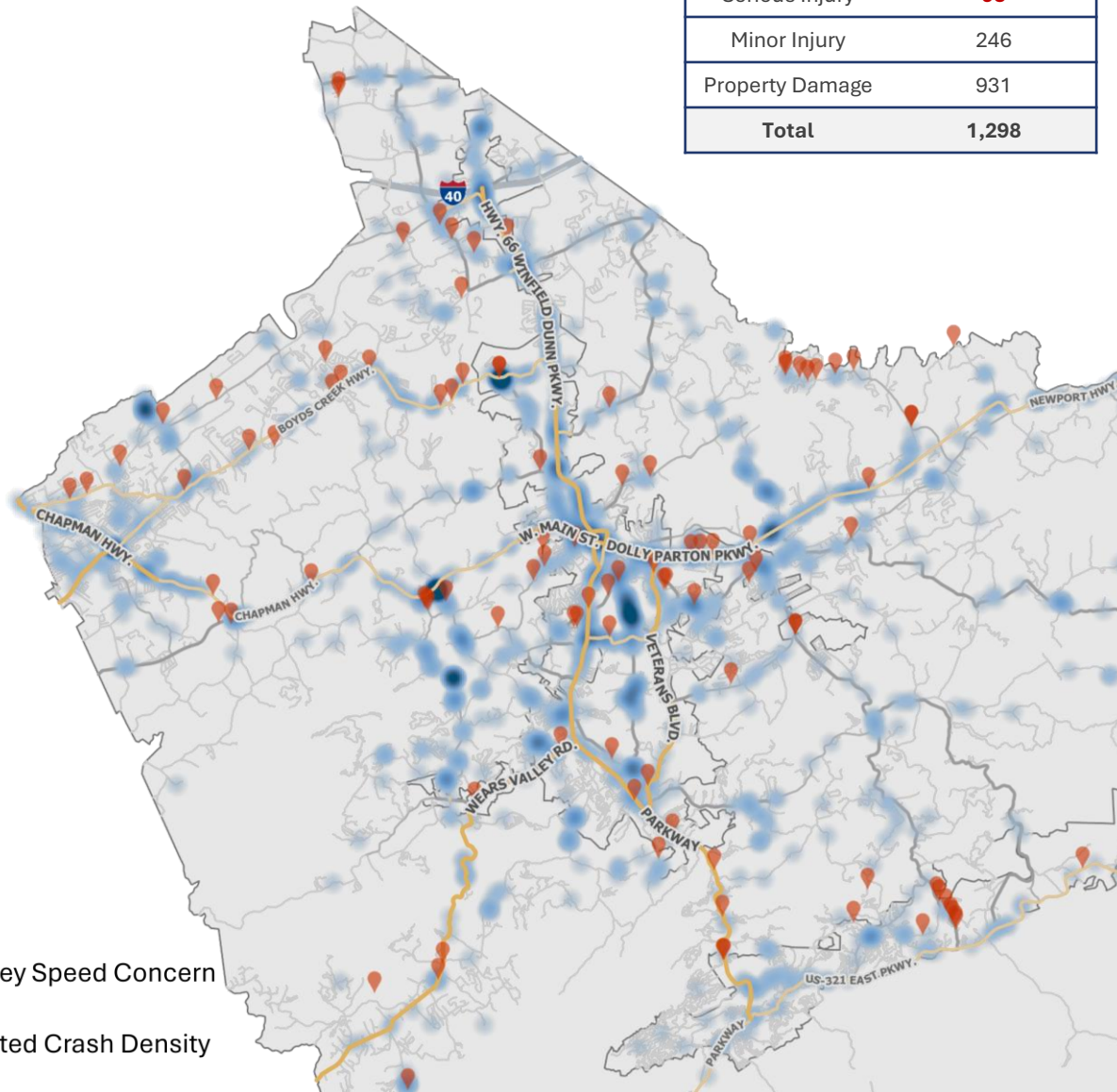
- 20% of all public comments in the online public survey cited speeding concerns in both rural and urban locations
- When asked about safety concerns, the public chose speeding as a top concern 58% of the time

ESTIMATED COST

- Total estimated cost $100,000

"Crashes where *speed* was indicated as a contributing factor were nearly *5x* as likely to result in a *fatality or serious injury*"

Injury Type	Speed-Related Crashes
Fatal	**26**
Serious Injury	**95**
Minor Injury	246
Property Damage	931
Total	**1,298**



CURVE SAFETY DEPLOYMENT TOOLKIT

SEVIER COUNTY SS4A

This supplemental planning project will create a set of standard, low-cost curve safety designs that can be directly deployed by Sevier County Highway Department crews. Building on the Safety Action Plan's identification of high-risk curve segments, the project will focus on practical, MUTCD-compliant countermeasures such as enhanced signage, markings, and delineators — supported by a clear guidance manual tailored to rural road conditions.

PROJECT SCOPE

- Focus on high-risk curves identified in the Safety Action Plan
- Conduct field reviews to document existing conditions and deficiencies
- Identify common curve risk scenarios (e.g., mountainous terrain, sharp curves, limited sight distance, transition zones)
- Develop a library of standard curve treatment packages with:
  - Enhanced curve warning signs and chevrons
  - Pavement markings and retroreflective edge lines
  - Post-mounted delineators and flexible object markers
  - Identify alternative countermeasures for constrained topography where typical MUTCD applications are not feasible
- Create plan sheets, installation instructions, and materials lists for each treatment
- Package guidance into a Curve Safety Field Manual for use by Sevier County Highway Department staff

SAFETY NEEDS

- Roadway departure crashes in curves account for a significant portion of severe injuries and fatalities on county-maintained roads
- Many curves lack uniform signage or visible delineation
- Crews currently address curve safety reactively — this project creates a proactive, ready-to-deploy approach

EVALUATION PLAN

- Use SAP-identified crash clusters and curve data to select priority treatment sites
- Compare curve signage and delineation levels against MUTCD standards

COMMUNITY CONCERN

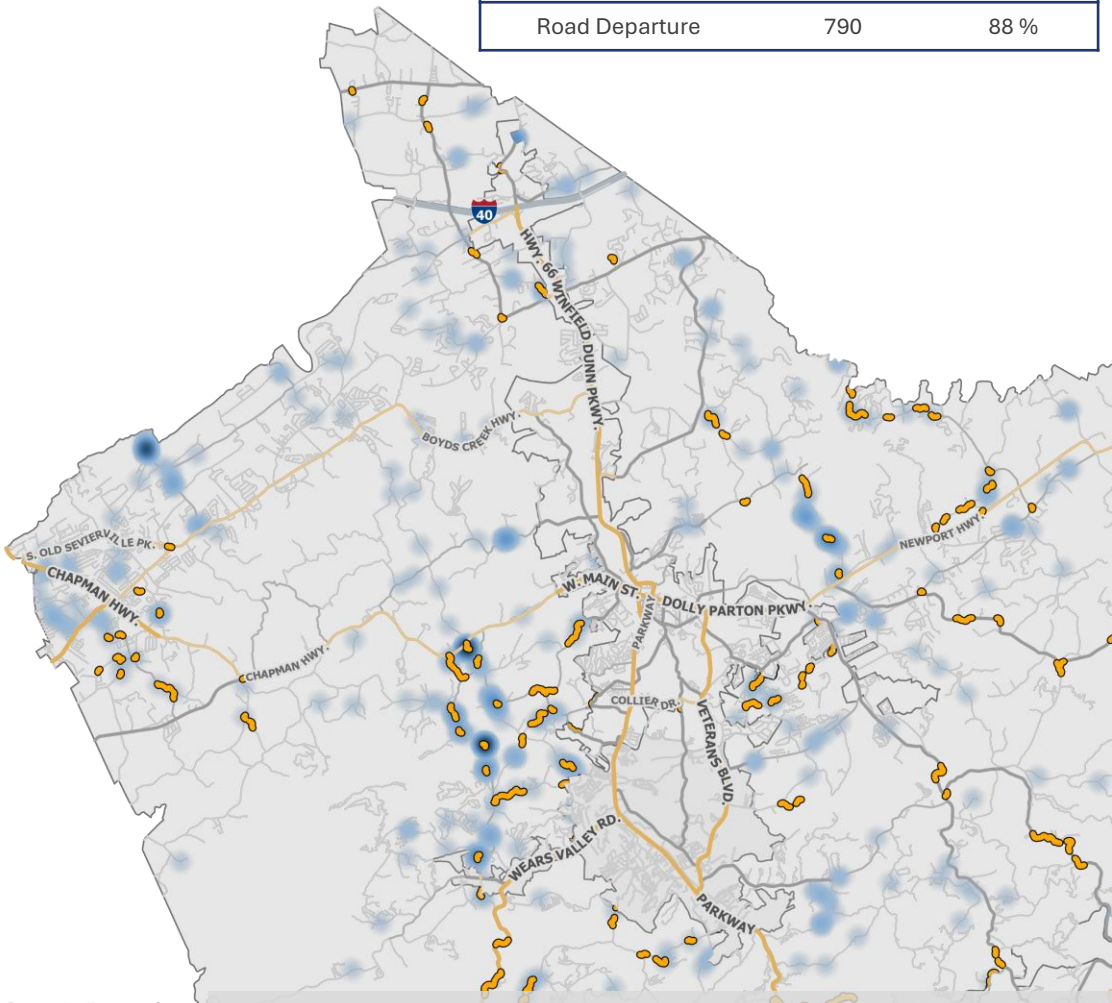
- When asked about safety concerns, the public chose dangerous curves as a top concern 43% of the time
- Local staff and emergency responders frequently respond to repeat crashes at the same curve locations

ESTIMATED COST

- Total estimated cost $120,000

"*95% of fatal and serious injury crashes* on County-maintained roads involve single vehicle road departure."

Crashes on County-Maintained Roads	Number of Crashes	Occurring in Curves
Total	**1,460**	**87%**
Fatal	**7**	**86%**
Serious Injury	**32**	**84%**
All Injury	251	88%
Road Departure	790	88 %



*Defined as curves with a calculated advisory speed less than 30 mph. This measure is based on roadway geometry and does not indicate the actual, signed advisory speed, if any exists

SCHOOL ZONE SAFETY AUDIT

SEVIER COUNTY SS4A

This project will conduct safety audits at school zones throughout Sevier County to evaluate crash risk, crossing conditions, and driver behavior during pick-up and drop-off periods. Each location will receive a mini road safety audit (RSA) that includes field reviews, data analysis, and stakeholder input. The goal is to develop tailored, low-cost recommendations for improving safety in and around each school zone, with a focus on reducing conflicts.

PROJECT SCOPE

- Perform mini road safety audits at 21 school zones using standardized field checklists
- Review crash data for pick-up/drop-off timeframes (7:30–8:30 AM, 2:30–4 PM)
- Evaluate crossing guard locations, signage, visibility, and driver behavior
- Document presence of sidewalks, ADA curb ramps, crosswalk markings, and traffic control devices
- Develop low-cost safety countermeasure recommendations for each site, including flashing beacons, painted bulb-outs, high-visibility crosswalks, updated school zone signs, and speed feedback signs
- Summarize findings in a School Zone Safety Audit Report and update the Action Plan

SAFETY NEEDS

- Observations and crash data suggest speeding, poor yielding, and distracted driving are common risks in Sevier County School zones
- Many school zones lack consistent signage, visibility enhancements, or well-defined pick-up zones

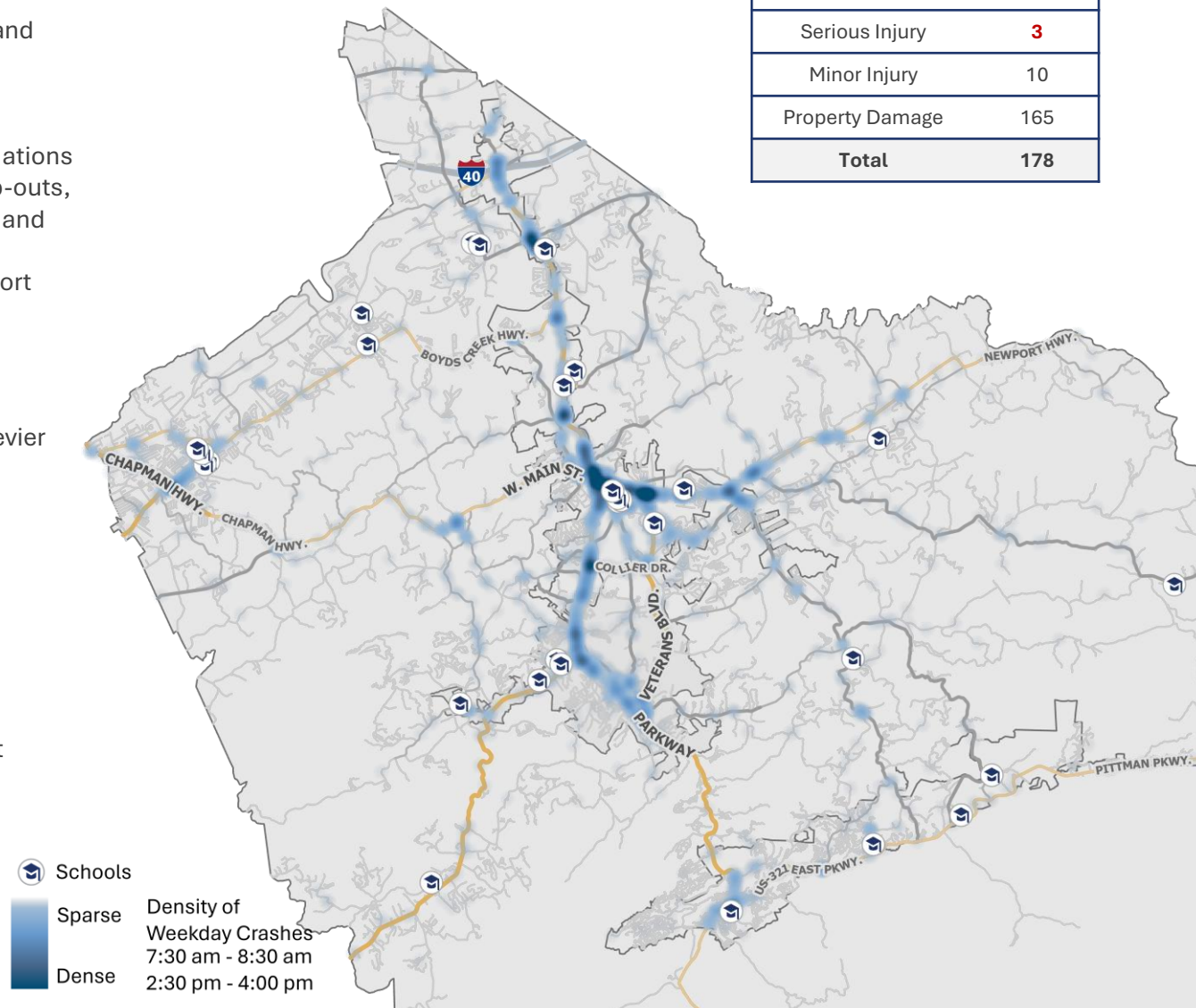
COMMUNITY CONCERN

- Parents, educators, and school officials have raised concerns about unsafe loading zones, poor driver compliance, and speeding in front of schools
- This audit process creates a consistent, countywide standard for school zone evaluation and improvement

ESTIMATED COST

- Total estimated cost $92,500

Crashes Near Schools During School Pick-up / Drop-off Periods	
Injury Type	Count
Fatal	**0**
Serious Injury	**3**
Minor Injury	10
Property Damage	165
Total	**178**



PARKWAY MEDIAN ACCESS STUDY

SEVIER COUNTY SS4A

This supplemental planning project will evaluate safety and operational issues related to median openings and driveway access along the Parkway in Pigeon Forge—from Wears Valley Road to Conner Heights Road. The corridor experiences high volumes of turning movement crashes due to frequent access points and permissive median designs. The study will analyze crash patterns, assess existing access spacing, and propose a strategic plan for median closures, U-turn accommodations, and driveway modifications to reduce conflict points and improve traffic flow.

PROJECT SCOPE

- Analyze crash data to identify high-frequency turning movement and left-turn crash locations
- Collect turning movement volume data and inventory existing median breaks, driveways, and U-turn facilities
- Evaluate current access spacing against best practices and MUTCD guidance
- Develop conceptual access management designs including:
  - Median closures or modifications
  - Strategic U-turn openings with directional signage
  - Driveway spacing and consolidation recommendations
- Conduct outreach to property owners and stakeholders to inform the design alternatives
- Prepare final concept plans and access management guidance to support implementation

SAFETY NEEDS

- The Parkway experiences high volumes of turning movement crashes due to dense access and permissive median openings
- Limited access control creates frequent driver hesitation, sudden stops, and rear-end or angle crashes
- Tourists unfamiliar with turning patterns and business access locations contribute to inconsistent lane changes, last minute turns, and dangerous U-turns
- Crash clusters show clear overlap with median openings (see Map)

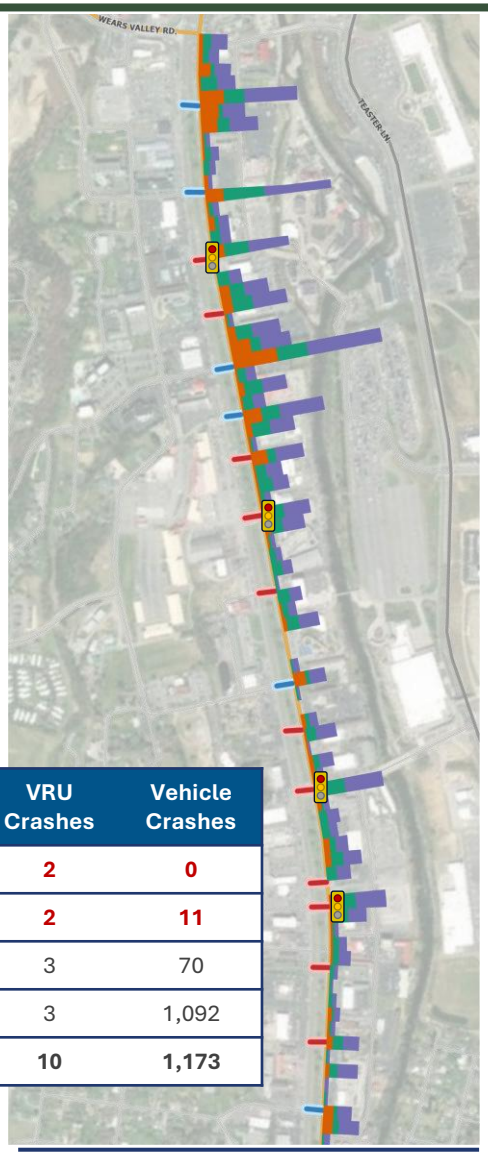
EVALUATION PLAN

- Further analyze crash reports by median opening and conflict zone
- Compare crash rates at uncontrolled vs. signalized or channelized access points
- Model access modifications and use traffic simulation or sketch-level delay analysis to estimate operational/safety impact
- Engage stakeholders and city staff to prioritize feasible modifications

ESTIMATED COST

- Total estimated cost $100,000

Injury Type	VRU Crashes	Vehicle Crashes
Fatal	2	0
Serious Injury	2	11
Minor Injury	3	70
Property Damage	3	1,092
Total	**10**	**1,173**





Crash Frequency

- Angle Type Crashes
- Rear-End and Sideswipe Crashes
- Other Crashes

Median Openings

- Channelized (U-turn)
- Full Movement Allowed

TEASTER LANE CORRIDOR STUDY

SEVIER COUNTY SS4A

This corridor-level planning study will evaluate traffic operations, vehicle and pedestrian safety, and multimodal infrastructure needs along Teaster Lane in Pigeon Forge. As a growing alternate route to the Parkway, Teaster Lane experiences tourist congestion, pedestrian activity, and limited infrastructure to support safe travel for all users. The study will identify opportunities for crosswalk improvements, intersection upgrades, and multimodal facilities.

PROJECT SCOPE

- Collect turning movement volume data and inventory existing conditions
- Analyze traffic operations, signal performance, and queueing at key intersections
- Perform public engagement and stakeholder outreach
- Assess pedestrian and bicycle infrastructure gaps, including sidewalks, ramps, crossings, curb conditions, lighting, and opportunities for transit-supportive improvements
- Develop a corridor concept plan with short- and long-term improvement options including enhanced crossings, sidewalk infill, intersection upgrades, and multimodal connectivity
- Develop Corridor Study Report and update the Action Plan with recommendations

SAFETY NEEDS

- Crashes are clustered at key intersections and turning locations, especially during peak tourism periods
- Gaps in crosswalks and sidewalk connectivity force pedestrians into driveways or unprotected street crossings
- Rapid growth in retail and tourism development has increased demand for safe and accessible mobility options
- Driveways and intersections along Teaster Lane have not been comprehensively assessed, despite significant growth in tourist attractions, hotels, and restaurants in the area.

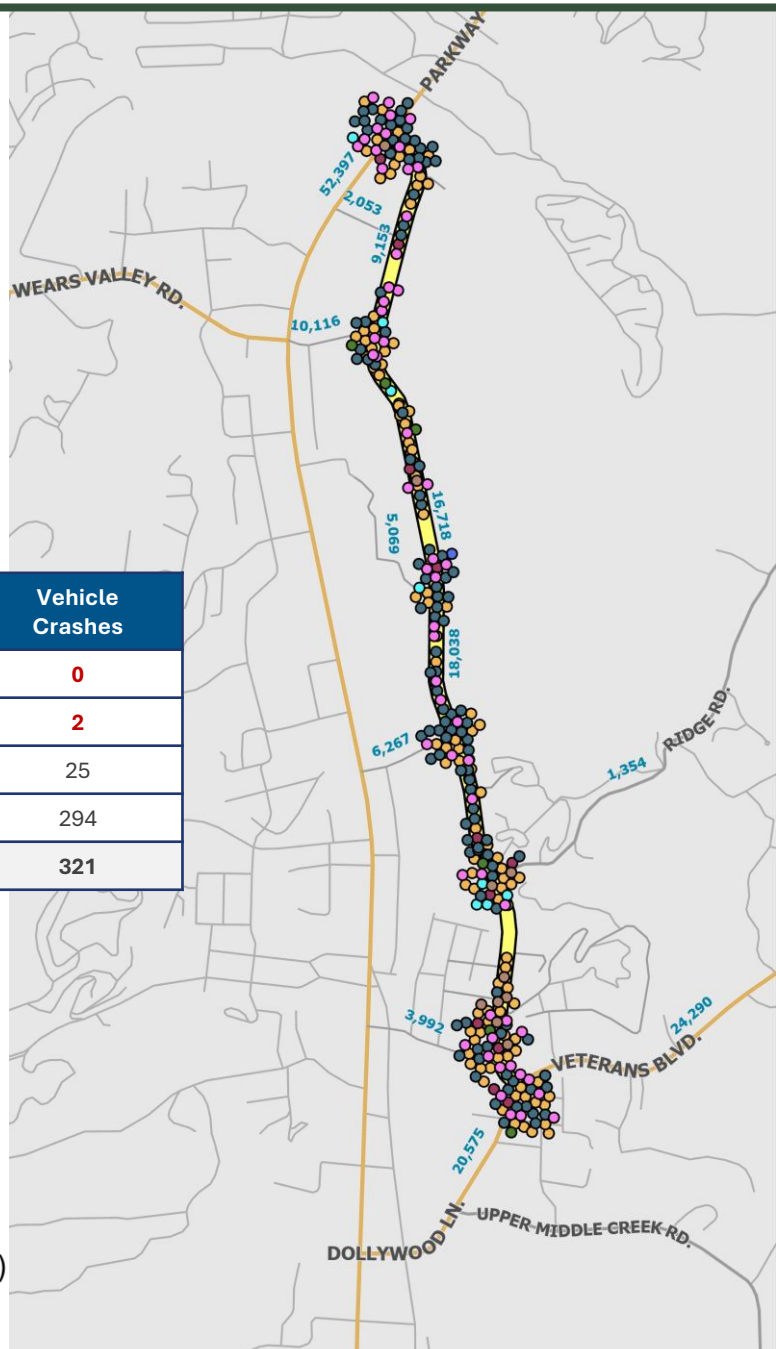
COMMUNITY CONCERN

- Community members and stakeholders have expressed concern about:
  - Unsafe pedestrian crossings near retail centers and inconsistent sidewalk access
  - High number of near-miss crashes
  - Heavy seasonal traffic without corresponding safety improvements
- Improving walkability and managing congestion are recurring themes in public outreach and local planning discussions

ESTIMATED COST

- Total estimated cost $130,000

Injury Type	Vehicle Crashes
Fatal	0
Serious Injury	2
Minor Injury	25
Property Damage	294
Total	**321**



RIVER ROAD CORRIDOR STUDY

SEVIER COUNTY SS4A

This corridor-level planning study will evaluate traffic operations, pedestrian safety, and multimodal infrastructure needs along River Road in Gatlinburg. As an alternate route to the Parkway, River Road has increasing pedestrian activity, tourism-driven traffic, and serves as a desirable corridor due to its free parking near trails, hotels, and riverfront areas. The study will identify opportunities for crosswalk improvements, intersection upgrades, and multimodal facilities.

PROJECT SCOPE

- Collect turning movement volume data and inventory existing conditions
- Analyze traffic operations, signal performance, and queueing at key intersections
- Perform public engagement and stakeholder outreach
- Assess pedestrian and bicycle infrastructure gaps, including sidewalks, ramps, crossings, curb conditions, lighting, and opportunities for transit-supportive improvements
- Develop a corridor concept plan with short- and long-term improvement options including enhanced crossings, sidewalk infill, intersection upgrades, and multimodal connectivity
- Develop Corridor Study Report and update the Action Plan with recommendations

SAFETY NEEDS

- Poorly defined on-street parking causes pedestrian visibility concerns at key crossing points
- Gaps in crosswalks and sidewalk connectivity force pedestrians into driveways or unprotected street crossings
- The absence of dedicated turning lanes contributes to congestion and increases the likelihood of rear-end and sideswipe crashes
- Limited speed limit and directional signage along River Road

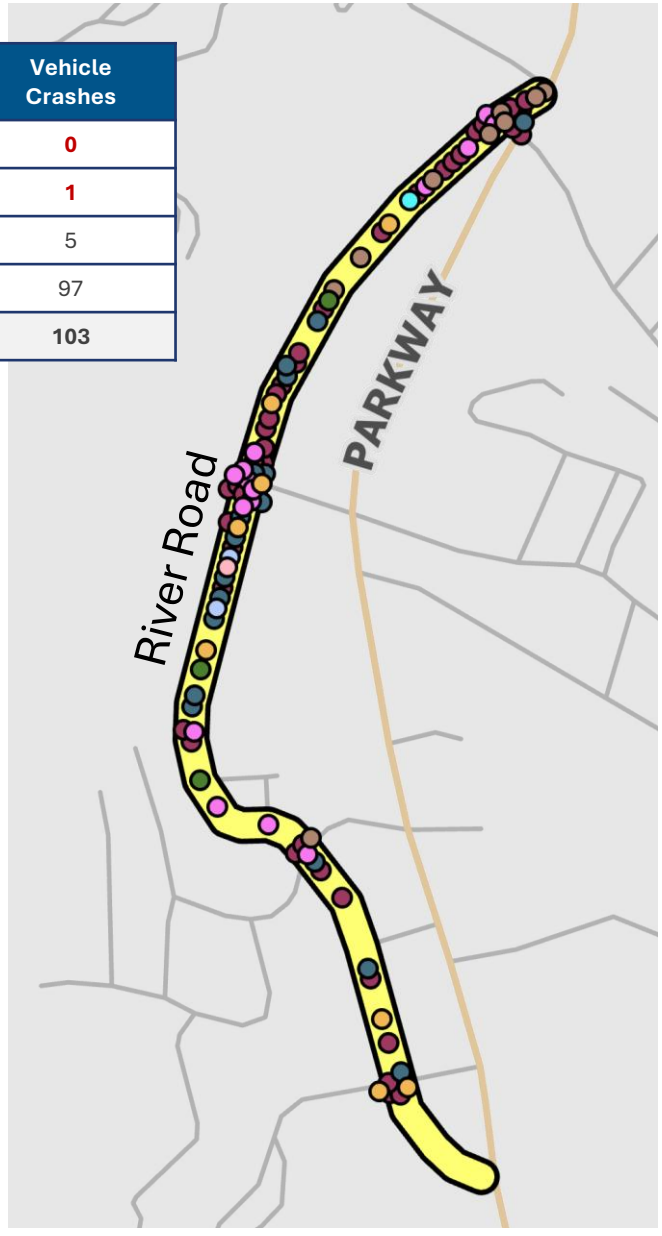
COMMUNITY CONCERN

- Community members and stakeholders have expressed concern about:
  - Conflicting priorities of providing parking and multimodal facilities
  - High number of rear end and same direction sideswipe crashes

ESTIMATED COST

- Total estimated Cost $130,000

Injury Type	Vehicle Crashes
Fatal	0
Serious Injury	1
Minor Injury	5
Property Damage	97
Total	**103**



STATE ROUTE 66 CORRIDOR STUDY

SEVIER COUNTY SS4A

This corridor study will evaluate safety and mobility conditions along Winfield Dunn Parkway (SR 66) from I-40 through downtown Sevierville to the southern city limits. The study will focus on identifying crash patterns, operational bottlenecks, and pedestrian/bike safety needs. Results will guide future capital planning and help prioritize effective safety countermeasures for this heavily travelled corridor.

PROJECT SCOPE

- Collect turning movement volume data and inventory existing conditions
- Assess operational issues such as turning conflicts, signal performance, and congestion
- Identify multimodal gaps (sidewalks, crossings, transit connections)
- Engage public and stakeholders to understand safety concerns, growth pressures and development access needs
- Recommend context-sensitive improvements, such as signal upgrades, median and access control, pedestrian/bike facilities, and multimodal design at key intersections
- Develop Corridor Study Report and update the Action Plan with recommendations

SAFETY NEEDS

- The SR 66 Corridor is part of the High Injury Network with over 50% of all crashes in Sevierville occurring along the corridor
- Rear-end and sideswipe crashes are the leading crashes in congested areas
- Serious injury crashes involve vulnerable road users near downtown Sevierville and retail zones
- Continued growth along SR 66 intensifies traffic pressure and multimodal risk
- SR 66 serves conflicting roles as a regional connector, tourist destination, and a local main street

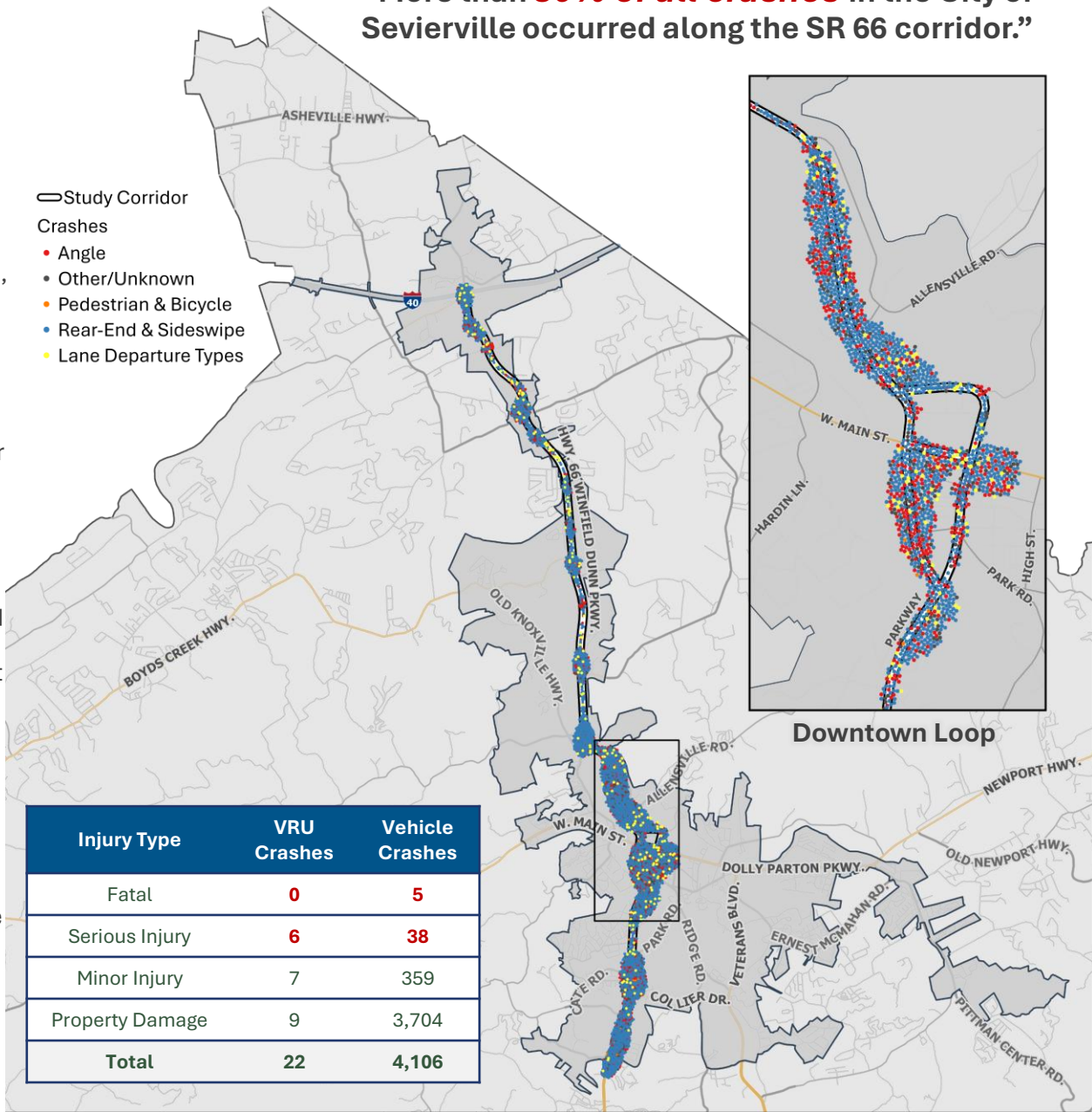
COMMUNITY CONCERN

- Local officials and stakeholders have flagged SR 66 as a critical corridor for both tourism and regional connectivity
- Residents cite unsafe crossings, congestion, and high crash frequency as persistent concerns
- This study supports TDOT and Sevierville's efforts to improve corridor safety, walkability, and operational performance

ESTIMATED COST

- Total estimated cost $250,000

"More than *50% of all crashes* in the City of Sevierville occurred along the SR 66 corridor."



Injury Type	VRU Crashes	Vehicle Crashes
Fatal	0	5
Serious Injury	6	38
Minor Injury	7	359
Property Damage	9	3,704
Total	**22**	**4,106**

ROAD SAFETY AUDITS AT COPELAND RD, TUNIS RD, WEBB CREEK RD & DUDLEY CREEK RD / RIDGE RD

SEVIER COUNTY SS4A

Perform field-based safety audits to identify intersection realignment and signage improvements. Focus on low-cost rural safety countermeasures.

PROJECT SCOPE

- Conduct site visits with stakeholders at Copeland Rd, Tunis Rd, Webb Creek Rd, and Dudley Creek Rd / Ridge Rd to perform road safety audits
- Assess signage, visibility, intersection geometry, and roadway conditions
- Evaluate crash history and contributing factors including curve alignment, lack of delineation, or driver behavior
- Identify low-cost safety treatments such as:
  - Curve warning signage
  - Enhanced chevrons
  - Edge lines or centerline markings
  - Intersection realignment
- Engage with Pittman Center and Gatlinburg staff to determine implementation feasibility using local labor and equipment
- Document findings in brief RSA-style reports with photos, mapping, and recommendations

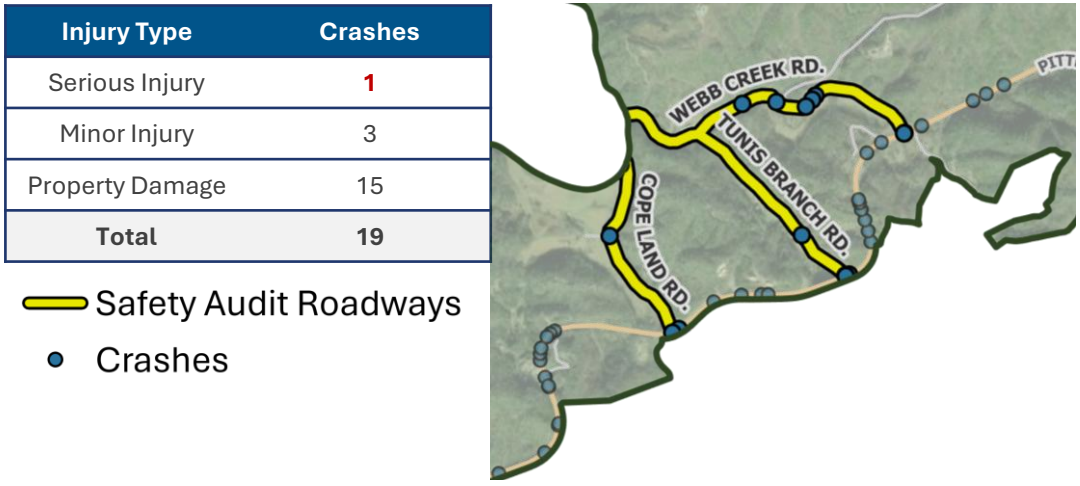
SAFETY NEEDS

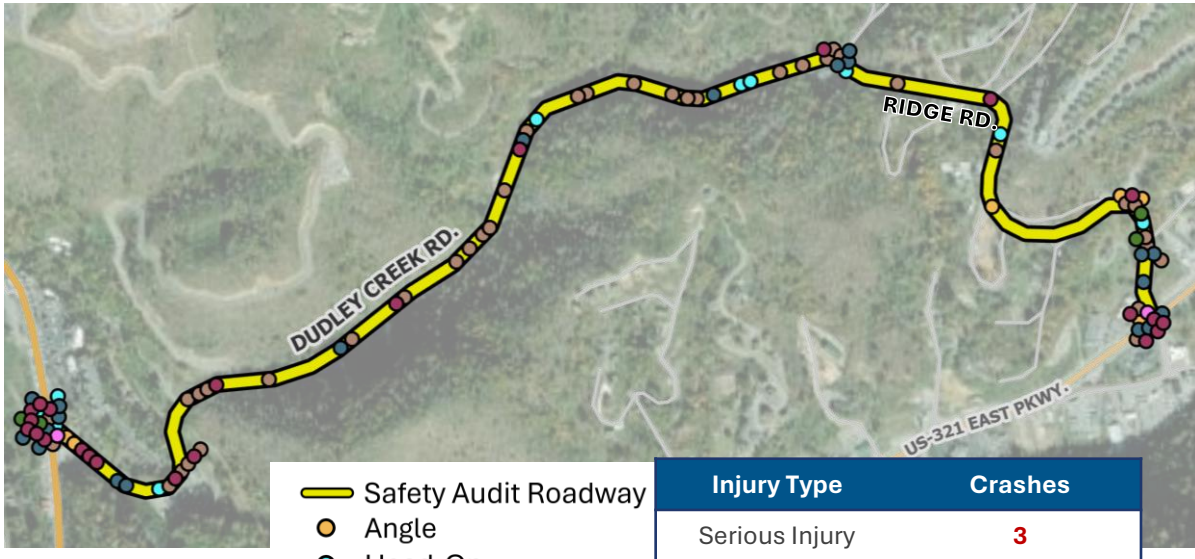
- All five roadways are rural and have limited visibility, curved approaches, and inconsistent signage
- Recent crashes include serious injuries and property damage, often linked to driver error or poor road design
- Existing signage is faded, inconsistently placed, or missing at several intersections and curves
- Conditions create challenges for unfamiliar drivers and first responders during emergency calls

ESTIMATED COST

- Total estimated cost for Copeland Rd, Tunis Rd, and Webb Creek Rd is $36,000
- Total estimated cost for Dudley Creek Rd / Ridge Rd is $20,000

Injury Type	Crashes
Serious Injury	1
Minor Injury	3
Property Damage	15
Total	**19**





Injury Type	Crashes
Serious Injury	3
Minor Injury	7
Property Damage	93
Total	**103**